Virginia Department of Health
Q Fever: Overview for Healthcare Providers

Organism	• *Coxiella burnetii*: obligate intracellular bacterium, Gram-negative coccobacillus • Can form environmentally-stable spore-like structures
Infective Dose	1-10 organisms
Occurrence	Worldwide. Incidence is difficult to determine because many cases are mild and not diagnosed. Q fever is rare in the U.S.; a total of 4 cases were reported in Virginia from 1987-2003.
Natural Reservoir	Sheep, cattle, goats. Also, cats, dogs, rabbits, birds, rodents, ticks.
Route of Infection	• Most commonly by inhalation of contaminated airborne particles from birth products, excreta or tissue. Also from inhalation of contaminated airborne particles from wool or bedding of infected animals. Laboratory exposure via infective aerosols, droplets or parenteral inoculation may occur. • Other reported routes: Inhalation of wind-borne organisms; ingestion of unpasteurized dairy products from infected animals; transmission by blood or bone marrow transfusion; possibly by tick bites.
Communicability	Person-to-person transmission is extremely rare, but has occurred (e.g., during autopsy, delivery of baby).
Risk Factors	Working with animals (e.g., livestock farms, meat processing plants, veterinary clinics, research facilities with pregnant sheep); attending birth by infected animals; consuming unpasteurized dairy products; handling infective laboratory specimens; living near livestock. Chronic Q fever is more likely in those with pre-existing cardiac valve disease, immunosuppression or pregnancy.
Case Fatality	Acute Q fever: usually < 1% in untreated cases, negligible with appropriate treatment Chronic Q fever: 23 to 65% if untreated, <10% with appropriate treatment
Incubation Period	Acute Q fever: 14 to 21 days (range: 10 to 39 days), depending on dose of exposure Chronic Q fever: months to years
Clinical Manifestations	• Variable severity; approximately half of infections are asymptomatic • **Acute Q fever:** non-specific febrile illness usually accompanied by rigors, myalgia, malaise, and retrobulbar headache. Severe disease can include acute hepatitis, pneumonia and meningoencephalitis. Fever usually lasts 5-14 days but may continue for as long as 2 months. Placentitis and miscarriage possible in pregnancy. • **Chronic Q fever:** endocarditis, hepatitis, osteomyelitis, chronic fatigue
Laboratory Tests/ Sample Collection	Paired serology (acute-phase serum collected as soon as possible after onset of disease; convalescent-phase serum collected >14 days after the acute specimen). Alert lab of biohazard. For consult, page the state lab (DCLS), available 24/7, at 804-418-9923. Specimens should be sent to DCLS for confirmation of agent and other studies.
Radiography	Chest x-ray may range from normal, to nonsegmental and segmental pleural-based opacities, to rounded opacities and hilar adenopathy. Small pleural effusions in about 35% of cases. Endocarditis may cause vegetative lesions on heart valve visible with echocardiography.
Treatment for Acute Disease	Doxycycline is the preferred treatment for acute Q fever; however, contraindications may exist for some groups. For pregnant women and children 2 months to 7 years of age, consider TMP/SMX. Alternative regimens exist (e.g., fluoroquinolones, chloramphenicol, macrolides, rifampin). Individual treatment decisions should be made in consultation with an infectious disease specialist.
Prophylaxis	Chemoprophylaxis following potential exposures is generally not recommended. Exposed populations may be monitored by public health.
Infection Control	Use standard precautions. Person-to-person transmission in the healthcare setting is generally not a concern, except for exposure to infective birth products.
Vaccine	In the United States, a vaccine is not commercially available for general use.
Public Health	Suspected cases of Q fever must be reported to the local public health department by the most rapid means available.

For more information, refer to: Q Fever: Guidance for Healthcare Providers, available at: http://www.vdh.virginia.gov/EPR/Agents_Biological.asp, or Centers for Disease Control and Prevention, http://www.cdc.gov/ncidod/diseases/submenus/sub_q_fever.htm

Updated 4/27/2005